Memorandum

U.S. Department of Transportation
Federal Aviation Administration

Subject:	ACTION: Engine Inoperative Ten Minute Takeoff Thrust/Power Rating (Revision to 6/28/94 Memorandum)	Date:	August 19, 1994
From:	Manager Transport Airplane Directorate, ANM-100 Manager Engine and Propeller Directorate, ANE-100	Reply to Attn. of:	
To:	Manager, Aircraft Certification Service, AIR-100 Manager, Engine and Propeller Directorate, ANE-100 Manager, Engine Certification Office, ANE-140 Manager, Boston Aircraft Certification Office, ANE-150 Manager, New York Aircraft Certification Office, ANE-170 Manager, Rotorcraft Directorate, ASW-100 Manager, Airplane Certification Office, ASW-150 Manager, Rotorcraft Certification Office, ASW-170 Manager, Special Certification Office, ASW-190 Manager, Atlanta Aircraft Certification Office, ACE-115A Manager, Small Airplane Directorate, ACE-100 Manager, Wichita Aircraft Certification Office, ACE-115W Manager, Chicago Aircraft Certification Office, ACE-115C Manager, Seattle Aircraft Certification Office, ANM-100S Manager, Los Angeles Aircraft Certification Office, ANM-100L Manager, Brussels Aircraft Certification Staff, AEU-100		

The original version of this memorandum was issued June 28, 1994, and addressed only turbojet engines. The memorandum is now revised to include turbopropeller engine installations.

The Joint Aviation Requirements (JAR) allow the use of takeoff thrust/power for up to ten minutes after the shutdown or failure of one or more engines. However, Part 1 of the Federal Aviation Regulations (FAR) defines rated takeoff thrust/power as limited to five minutes of operation. At some airports (mostly foreign) the maximum allowable airplane takeoff weight is limited by the climb gradient capability (at maximum continuous thrust/power) needed to clear distant obstacles after takeoff. The availability of takeoff thrust/power for use up to ten minutes enables some foreign operators to dispatch at an increased gross weight relative to U.S. operators under these conditions. U.S. operators have expressed a desire to be treated equally in similar circumstances in order to be competitive.

The Transport Standards Staff has reviewed Part 25 and determined that no revisions are needed to provide the flexibility for an engine inoperative "10-minute" takeoff thrust/power rating. The limiting phrase is found in Part 1 in the definition of rated takeoff thrust/power. The Engine and Propeller Standards Staff is proposing a regulatory change to Part 1 to harmonize the FAR with the JAR. The proposed wording would extend the current definition of rated takeoff thrust/power for turbine engines in Part 1 as follows:

". . . and limited in use to periods of not over 5 minutes for takeoff operation, and, for turbojet (including turbofan) and turbopropeller engines, when specifically requested by the engine type certificate holder, to periods of not over 10 minutes for engine inoperative takeoff operations."

The Engine and Propeller Directorate has verified that the engine inoperative "10-minute" rating is well within the boundaries of the engine certification standards of Part 33 for turbine engines.

Since the Part 1 definition is not limiting with respect to ratings selected by the engine manufacturer for abnormal operations, we have adopted the following procedure to allow the FAA approved transport category Airplane Flight Manual (AFM) to be revised to incorporate instructions regarding the engine inoperative "10-minute" takeoff thrust/power rating for airplanes with turbine engine installations. Upon receipt of a written request from an applicant seeking an engine inoperative "10-minute" takeoff thrust/power rating the following items will be addressed:

a. The engine type certificate holder shall request in writing to the cognizant aircraft or engine certification office for approval of an engine inoperative "10-minute" takeoff thrust/power rating for the relevant turbine engine models.

b. The aircraft or engine certification office shall ensure that the relevant engine type certification data sheet is revised to note the extended turbine engine rating.

c. The transport category airplane type certificate holder shall request in writing to the cognizant Aircraft Certification Office (ACO) the desire to establish the engine inoperative "10-minute" takeoff thrust/power rating for the relevant airplane/engine model(s). The request should include the engine type certificate holder's "endorsement" of the extended turbine engine rating.

d. The transport category airplane type certificate holder shall present the appropriate AFM revisions concerning the engine inoperative "10-minute" takeoff thrust/power operation to the ACO for review and approval.

e. The ACO shall ensure that the relevant airplane type certification data sheet is revised to note the extended turbine engine rating.

The engine inoperative "10-minute" rating operation should be processed as an engineering approval unless there are actual hardware changes. The AFM revision should specify that using takeoff thrust/power for more than five minutes (not to exceed ten minutes) is approved for use only in the event of an inoperative engine(s) due to shutdown or failure. The AFM obstacle clearance charts (see §§121.189(d) and 135.379(d)) should be revised to reflect the increased climb capability.

This interim procedure, which is available upon request, may be used to provide the additional obstacle clearance capability for U.S. operators. When the Part 1 amendment is effective the normal certification procedures will apply.

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